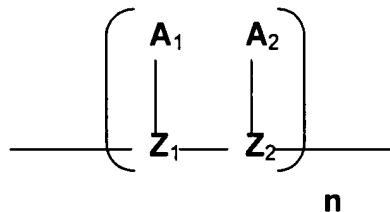


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-123 (cancelled)

124. (previously presented): A lipophilic polyamino acid of the formula:



and salts thereof,

where:

Z₁ and Z₂, independently of one another, are both amino acids selected from the group consisting of ornithine, lysine, arginine and histidine;

n is an integer ranging from 1 to about 2,000;

A₁ and A₂, independently of one another, are selected from the group consisting of the groups X₁ - X₄ as follows:

X₁ is a straight-chain alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring -CH₂- groups can be replaced with an O or S atom;

X₂ is a branched alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring -CH₂- groups can be replaced with an O or S atom;

X₃ is a straight-chain or branched alkyl group substituted with one or two OH, SH, NH₂ or amine groups within about 3 carbon atoms of the bond between X₃ and Z;

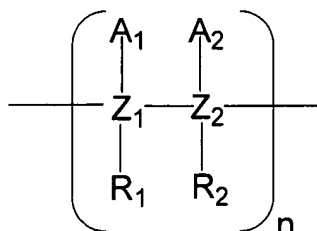
X₄ is a substituted straight-chain or branched alkyl, alkenyl or alkynyl group having from 2 to about 22 carbon atoms wherein the substituent is an aromatic, alicyclic, heterocyclic or polycyclic ring and wherein one or more of the non-neighboring -CH₂- groups of said alkyl, alkenyl or alkynyl group can be substituted with an O or S atom; and

the termini of the polyamino acid are an NH₂ and a OH.

125. (previously presented): The lipophilic polyamino acid of claim 124 wherein n is between 10 and 50.
126. (previously presented): The lipophilic polyamino acid of claim 124 wherein Z₁ and Z₂ are lysines.
127. (previously presented): The lipophilic polyamino acid of claim 124 wherein Z₁ and Z₂ are arginines.
128. (previously presented): The lipophilic polyamino acid of claim 124 wherein A₁ and A₂, independently of one another, are a straight-chain or branched alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring -CH₂- groups can be replaced with an O or S atom.

129. (previously presented): The lipophilic polyamino acid of claim 128 wherein alkyl, alkenyl, or alkynyl groups have from about 12 to about 22 carbon atoms.
130. (previously presented): The lipophilic polyamino acid of claim 124 wherein the A₁ and A₂ groups are alkyl groups having from about 12 to about 22 carbon atoms.
131. (previously presented): The lipophilic polyamino acid of claim 124 wherein A₁ and A₂, independently of one another, are straight-chain or branched alkyl groups substituted with one or two OH, SH, NH₂, or amine groups within about 3 carbon atoms of the bond between X₃ and Z₁ and Z₂.
132. (previously presented): The lipophilic polyamino acid of claim 124 wherein A₁ and A₂, independently of one another, are substituted straight-chain or branched alkyl, alkenyl or alkynyl groups having from 2 to about 22 carbon atoms wherein the substituent is an aromatic alicyclic, heterocyclic or polycyclic ring and wherein one or more of the non-neighboring -CH₂- groups of said alkyl, alkenyl or alkynyl group can be substituted with an O or S atom.
133. (previously presented): A composition for transfecting cells which comprises a nucleic acid and one or more lipophilic polyamino acids according to claim 124.
134. (previously presented): The composition of claim 133 wherein the A₁ and A₂ groups of said lipophilic polyamino acid are alkyl groups having from about 12 to about 22 carbon atoms.
135. (previously presented): A lipid aggregate comprising one or more lipophilic polyamino acids according to claim 124.
136. (previously presented): A method for transfecting a cell which comprises the step of contacting the composition of claim 133 with a cell.
137. (previously presented): A transfection kit which comprises one or more lipophilic polyamino acids according to claim 124.

138. (previously presented): A lipophilic polycationic polysaccharide of formula:



and salts thereof,

where:

Z_1 and Z_2 , independently of one another, are monosaccharides;

n is an integer ranging in value from 1 to about 600;

R_1 and R_2 , independently of one another, are tertiary amines; and

A_1 and A_2 , independently of one another, are selected from the group consisting of groups $X_1 - X_4$ as follows:

- X_1 is a straight-chain alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring $-CH_2-$ groups can be replaced with an O or S atom;
- X_2 is a branched alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring $-CH_2-$ groups can be replaced with an O or S atom;
- X_3 is a straight-chain or branched alkyl group substituted with one or two OH, SH, NH_2 or amine groups within about 3 carbon atoms of the bond between X_3 and Z_1 and Z_2 ;
- X_4 is a substituted straight-chain or branched alkyl, alkenyl or alkynyl group having from 2 to about 22 carbon atoms wherein the substituent is an aromatic, alicyclic, heterocyclic or polycyclic ring

and wherein one or more of the non-neighboring -CH₂- groups of said alkyl, alkenyl or alkynyl group can be substituted with an O or S atom; and

the termini of the polysaccharide are H or OH dependent upon the structures of monosaccharides Z₁ and Z₂.

139. (previously presented): The polycationic polysaccharide of claim 138 wherein Z₁ and Z₂ are both glucose.
140. (previously presented): The polycationic polysaccharide of claim 138 wherein n is between 50 and 100.
141. (previously presented): The polycationic polysaccharide of claim 138 wherein R₁ and R₂ are diethylaminoethyl groups.
142. (previously presented): The polycationic polysaccharide of claim 138 wherein A₁ and A₂, independently of one another, are a straight-chain or branched alkyl, alkenyl, or alkynyl group having from 2 to about 22 carbon atoms wherein one or more non-neighboring -CH₂- groups can be replaced with an O or S atom.
143. (previously presented): The polycationic polysaccharide of claim 138 wherein alkyl, alkenyl, or alkynyl groups have from about 12 to about 22 carbon atoms.
144. (previously presented): The polycationic polysaccharide of claim 138 wherein A₁ and A₂, independently of one another, are straight-chain or branched alkyl groups substituted with one or two OH, SH, NH₂ or amine groups within about 3 carbon atoms of the bond between X₃ and Z₁ and Z₂.
145. (previously presented): The polycationic polysaccharide of claim 138 wherein A₁ and A₂, independently of one another, are substituted straight-chain or branched alkyl, alkenyl or alkynyl groups having from 2 to about 22 carbon atoms wherein

the substituent is an aromatic, alicyclic, heterocyclic or polycyclic ring and wherein one or more of the non-neighboring -CH₂- groups of said alkyl, alkenyl or alkynyl group can be substituted with an O or S atom.

146. (previously presented): A composition for transfecting cells which comprises a nucleic acid and one or more polycationic polysaccharides according to claim 138.
147. (previously presented): The composition of claim 146 wherein the A₁ and A₂ groups of said polycationic polysaccharide are alkyl groups having from about 12 to about 22 carbon atoms.
148. (previously presented): A lipid aggregate comprising one or more polycationic polysaccharides according to claim 138.
149. (previously presented): A method for transfecting a cell which comprises the step of contacting the composition of claim 146 with a cell.
150. (previously presented): A transfection kit which comprises one or more polycationic polysaccharides of claim 138.

Claims 151-161 (cancelled)